

LASKINA, Ye.D.; DEVITSKAYA, T.A.; BELOV, V.N.

Synthesis of 3-hydroxy-4-ethoxy-1-propenylbenzene ("vanitrop") from
pyrocatechol. Trudy VNIISNDV no.6:31-37 '63. (MIRA 17:4)

LASKINA, Ye.D., kand. khim. nauk; DEVITSKAYA, T.A.

Synthesis of piperonylpropanal. Masl.-zhir. prom. 29 no.5:
23-24 My '63. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh
i natural'nykh dushistykh veshchestv.
(Perfumes, Synthetic) (Piperonal)

LASKINA, Ye.D.; RUDOL'FI, T.A.; BELOV, V.N. [deceased]

Coumarans, their synthesis and spectral studies. Zhur. ob. khim.
33 no.8:2513-2518 Ag '63. (MIRA 16:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh
i natural'nykh dushistykh veshchestv.

RUDOL'FI, T.A.; SHCHEDRINA, M.M.; LUSHCHIK, V.I.; LASKINA, Ye.D.

Gas-liquid chromatography and infrared spectra of isomeric allyl guetols and allyl guaiacols. Zhur. anal. khim. 19 no.5: 619-621 '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh i natural'nykh dushistykh veshchestv, Moskva.

LASKINA, Ye.D.; BELOV, V.N. [deceased]; RUDOL'FI, T.A.; SHCHEDRINA, M.M.

Claisen rearrangement. Zhur. ob. khim. 34 no.12:4015-4018 D '64
(MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sinteticheskikh
i natural'nykh dushistykh veshchestv.

RUDOL'FI, T.A.; SUKHORUKOVA, T.V.; LASKINA, Ye.D.; BELOV, V.N. [deceased]

Coumarans, their synthesis and spectral studies. Zhur. ob. khim.
35 no.5:886-888 My '65. (MIRA 18:6)

LASKINA, YE. F.

25965 Laskina, Ye. F. Sluchay mnozhestvennogo metastaticheskogo porazheniya rakom limfaticheskoy sistemy iz pervichnogo raka bronkha. Sbornik nauch. rabot lecheb. uchrezhdeniy Mosk. Voen. okr. Gor'kiy, 1948, s. 123-26.

SO: Letopis' Zhurnal Statey, No. 30, Moscow, 1948

LASKINA, Ye.F., podpolkovnik meditsinskoy sluzhby

Treating burns. Voen.-med. zhur. no.3:72-75 Mr '56.
(BURNS AND SCALDS)

(MLRA 9:9)

BAZYLEVA, N.N., BOLOTKINA, L.I., LASKINA, Ye.M., OSVETIMKAYA, N.P., SMIRNOVA, L.I.

Pharmacological and biological characteristics of Inonotus obliquus.
Farm. i toks. 21 no.5:89-90 S-0 '58 (MIRA 11:11)

1. Kafedra fakul'tetskoy terapii (zav. - prof. P.N. Stepanova)
Smolenskogo meditsinskogo instituta.
(FUNGI,

Inonotus obliquus extract, pharmacol. (Rus))

STRAZHEVSKIY, Aleksey Borisovich; LASKINA, Ye.S., red.; BELICHENKO,
R.K., mladshiy red.; VILENSKAYA, E.N., tekhn. red.

[From the White Sea to the Black Sea; an automobile trip from
Archangel to Novovorossiysk] Ot Belogo moria do Chernogo; na
avtomobile iz Arkhangel'ska v Novorossiisk. Moskva, Geograf-
giz, 1962. 304 p. (MIRA 15:8)

(Russia---Description and travel)

215300

S/120/60/000/006/010/045
E032/E314

AUTHOR: Lasko, K.I.

TITLE: Combination of a Beta-spectrometer with a Controlled
Wilson Chamber for the Study of High-energy Limits
of Beta-spectra

PERIODICAL: Priboiy i tekhnika eksperimenta, 1960, No. 6,
pp. 42 - 44

TEXT: The principle of the apparatus is illustrated in
Fig. 2. The electron from the β -particle source under
investigation S passes through the β -spectrometer AB and
the β -particle counters E and F. It then enters the
Wilson chamber W. The two counters are in coincidence
and the coincidence pulse is made to operate the Wilson
Chamber in which the track of the β -particle is photographed
in a magnetic field. The device can be used to investigate
the high-energy limits of β -spectra, to investigate low-
intensity partial spectra in the determination of the decay
schemes of radioactive isotopes, and to study the scattering
of electrons of given energy in the gas of the Wilson chamber.

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S/120/60/000/006/010/045

E032/E314

Combination of a Beta-spectrometer with a Controlled Wilson Chamber for the Study of High-energy Limits of Beta-spectra

The low-intensity partial β -spectra of Na²⁴, Au¹⁹⁸, La¹⁴⁰ and Sb¹²⁴ are said to have been investigated with this apparatus.

There are 4 figures and 3 references: 2 Soviet and 1 English

SUBMITTED: October 15, 1959

Card 2/2

10

LASKO, N. F.

B

Concerning Certain Limiting States of Metals. N. F. Lasko, Henry Brutscher, Translation No. 2317. R. n. n. n. From Zhurnal Tekhnicheskoi Fiziki (Journal of Technical Physics), v. 18, July 1948, p. 986-989. Previously abstracted from original.

ASAP-51A METALLURGICAL LITERATURE CLASSIFICATION

10000 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

LASKO, N. F.

"Concerning the Limited and Corresponding Mechanical States of Metals." Thesis for degree of Dr. Technical Sci. Sub. 3 March 50, Metallurgical Inst. imeni A. A. Baykov, Acad. Sci. UBSR

Summary 71, 4 Sep 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1950. From Vechernyaya Moskva, Jan-Dec. 1950

J. G. LASKO, N. F.

Translations

28
OT/181
U. S. S. R.

On the Lapture of Metals
Zh. Tekh. Fiz., 20(7), 884-887, 1950

N. F. Lasko

Issued by Fulmer Research Institute.

B.N. LASKORIN, (S.S. Metalnikov), (A.S. Terentyev)

"EXTRACTION OF URANIUM FROM NATURAL WATERS" by B. N. Laskorin, S. S. Metalnikov,

A. S. Terentyev

Report presented at 2nd UN Atoms-for-Peace Conference, Geneva, 9-13 Sept 1958

LASKORIN, B.N.

LASKORIN, B.N.

21(4)
 THEM I BOOK EXPLOITATION 807/2718
 International Conference on the Peaceful Uses of Atomic Energy. 2nd,
 Geneva, 1958
 Doklady sovetskikh uchenykh; yadernyye goryuchyye i reaktornyye metall.
 (Reports of Soviet Scientists; Nuclear Fuel and Reactor Metals) Moscow,
 Atomizdat, 1959. 670 p. (Series: 12; Trudy, vol. 3, 6,000 copies
 printed.
 ML (Title page): A.I. Rodchik, Academician, A.P. Vinogradov, Academician,
 V.A. Ismail'yev, Corresponding Member, USSR Academy of Sciences, and
 A.P. Zefirov, Deputy of Technical Sciences; Ed. (Title book): V.V.
 Pavlovskiy and G.M. Fubinitsev; Tech. Ed.: E.I. Masel'.
 PURPOSE: This volume is intended for scientists, engineers, physicists, and
 biologists working in the production and peaceful application of atomic
 energy; for professors and students of technical schools and
 higher technical education where the subject is taught; and for people
 interested in atomic science and technology.
 CONTENTS: This is volume 3 of a 5-volume set of reports on atomic energy
 presented by Soviet scientists at the Second International Conference on the
 Peaceful Uses of Atomic Energy, held in Geneva from September 1 to 13, 1958.
 Volume 3 consists of two parts. The first part, edited by A.I. Zubov, is
 devoted to geology, prospecting, concentration, and processing of nuclear
 source material. The second part, edited by G.L. Zolotarev, is devoted
 on metallurgy, metallography, processing technology of, includes 27 reports
 reactor metals, and neutron irradiation effects on metal, nuclear fuels and
 individual papers in most editions correspond word for word with those in the
 official English language edition on the Conference proceedings. See
 807/2511 for the titles of the other volumes of the set.
 Includes: M.D. Lashchenko, N.I. Golov, A.M. Shishkov, and V.M. Lokarchuk.
 Production of Fibreboards from Synthetic Mixtures and Gums
 (Report No. 2062)
 Byelov, M.D., and I.Y. Lashchenko. Plasteability of Beryl (Report No. 2065)
 Lashchenko, M.D., S.A. Melnikova, and A.S. Yermolova. Extraction of
 Uranium from Natural Water (Report No. 2063)
 Shcherbakov, M.D., G.L. Zolotarev, M.P. Koshcheyev, S.A. Pavlov, I.A.
 Zefirov, and G. V. Porychikov. Complex Utilization of Uranium Ores
 (Report No. 2064)
 Epifan, G.Ye, and T.A. Uspenskiy. Investigations on Alkaline Methods
 for Monazite and Zircon Processing (Report No. 2124)

Card 2/11

21(1), 11(6)

AUTHORS:

Kaplan, G. Ye., Laskorin, B. N.,
Nevskiy, B. V.

SOV/89-6-2-1/28

TITLE:

Industrial Methods of Low-Grade Uranium Ore Refinement (Promyshlennyye metody pererabotki bednykh uranovykh rud)

PERIODICAL:

Atomnaya energiya, 1959, Vol 6, Nr 2, pp 113 - 123 (USSR)

ABSTRACT:

This paper gives a survey of 28 English Geneva Reports dealing with the technical problems and industrial reprocessing of uraniferous ores. The extraction of uranium from uranium solutions by sorption at synthetic resins is being widely used at present, and 70% of all uranium is now obtained by this method. Uranium extraction by liquid extracting agents is less applied. The usual mechanical enrichment methods, such as gravitation, flotation, etc., are of secondary importance. However, this method regains importance in connection with the possibility of complex ore refinement. Radiometric enrichment is a very modern method, wherein the radioactive properties of uraniferous minerals are used for separating them from barren rock. There are 4 figures and 28 references.

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21(1),5(2)

AUTHORS:

SOV/89-7-2-2/24
Laskorin, B. N., Ul'yanov, V. S., Sviridova, R. A.,
Arzhatkin, A. M., Yuzhin, A. I.

TITLE:

Sorption Methods of Separating Barium From Radium, Aluminum
From Gallium, and Zirconium From Hafnium (Sorbtsionnyye metody
razdeleniya bariya i radiya, alyuminiya i galliya, tsirkoniya i
hafniya)

PERIODICAL:

Atomnaya energiya, 1959, Vol 7, Nr 2, pp 110-116 (USSR)

ABSTRACT:

For the separation of elements chemically close to each other
the chromatographical method was applied which due to its small
capacity cannot be applied on an industrial scale. The efficiency
of the method can be considerably increased by the use of an
appropriate complexformer, which decreases the active concentra-
tion of the ions to be separated; this would mean in first
approximation a decrease of the mass of the elements to be
separated. The difference in the formation constants of the
complex compounds increases the separation factor. It was
established that for the separation of barium and radium citric
acid, nitryltri- and ethylene diamine tetra acetic acid (EDTA)
as eluting agents can be used with best results. The separation

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Sorption Methods of Separating Barium From Radium,
Aluminum From Gallium, and Zirconium From Hafnium

SOV/89-7-2-2/24

factor was determined for 9 different kationites solved in different acids. Maximum separation factors were achieved under the following conditions: 1) use of hydrochloric acid. Kationite KU-2 with 8% latticelike polymerization, granulation 100-200 mesh, operational temperature 90°. The acid concentration is increased in the course of the experiment from 0.5 to 5.0 m. Elution speed 2 cm/min. Barium and radium are collected in the upper section of the column. The height of the kationite saturated with barium is 10% of the kationite's total height. 2) Use of citric acid. Kationite Ku-2 granulation 100-200 mesh, 5% citric acid ammonia with a pH value of 8.0. Separation up to 20% of the kationite's total height. Elution speed 2 cm/sec. The exact results are given in a diagram. 3) Use of EDTA. By this method, described somewhat more in detail, it is possible to separate the whole radium from 100 kg of barium with a total volume of the kationite of 0.5 m³. Volume of the liquids 8 m³. The efficiency of the developed method is 50 kg/h per m² of the cross section of the column. For the separation of 1 kg of barium 0.01 kg of EDTA, 1.50 kg sodium lye and 1.2 kg hydrochloric acid is needed.

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Sorption Methods of Separating Barium From Radium,
Aluminum From Gallium, and Zirconium From Hafnium

SOV/69-7-2-2/24

The separation of zirconium and hafnium is achieved by means of ion-exchanging resins and a mixture of sulfur- and fluorhydric acid. The best conditions are: zirconium concentration 20-30 g/l, sulfuric acid 0.65-0.75 M, mol relation between fluor and zirconium 0.7-1.0, working out a column of 10% of the resin weight. Kationite KU-2, granulation 60-100 mesh, height of the sorbent layer 2-2.5 m, filtering velocity of the solutions 1.5-2 cm/min, achievable efficiency of 15-20 kg/h per m² of the cross section of the column. By using the described method 100 kg of hafnium-free zirconium was prepared. Separation of gallium from anodic alloys. The initial alloy is ground to 0.3 mm sized pieces and solved in hydrochloric acid. The copper in the solution is enriched with aluminum or iron shavings. The iron is simultaneously transferred into the bivalency state. The solution's acidity is being increased to 3.7 M and subsequently filtered through a layer of sorbent. The anionite is washed with 5 M of hydrochloric acid. The gallium is desorbed with 0.5 M hydrochloric acid, the solutions are neutralized with an alkali and the gallate electrolyzed

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Sorption Methods of Separating Barium From Radium,
Aluminum From Gallium, and Zirconium From Hafnium

SOV/89-7-2-2/24

to obtain metal gallium. Efficiency of the developed
installation: 50 kg/h gallium per m² of the cross section of
the column. There are 7 figures, 6 tables, and 10 references.

SUBMITTED: November 25, 1958

Card 4/4

AM4024184

BOOK EXPLOITATION

S/0793

Laskorin, B. N.; Zefirov, A. P.; Skorovarov, P. I.

Extraction of uranium from solutions and pulps (Ekstraktsiya urana iz rastvorov i pul'p) Moscow, 1960. 24 p. illus., biblio. No. copies printed not given. (At head of title: Glavnoye upravleniye po ispol'zovaniyu atomnoy energii pri Sovete Ministrov SSSR)

TOPIC TAGS: uranium extraction, uranium ore

PURPOSE AND COVERAGE: Data are presented concerning the extraction of uranium from the sulfate, nitrate, hydrochloric, and phosphate solutions and pulps most frequently encountered in the hydrometallurgy of uranium. Esters of carboxylic, phosphoric, and phosphinic acids, and liquid cation and anion solutions are investigated as extraction agents that are most convenient for industrial application. The process of extracting uranium from thick ore pastes is described for the treatment of high-grade uranium ores.

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Card

S/089/60/008/06/04/021
B006/B063 82305

21.3200

AUTHORS: Laskorin, B. N., Zefirov, A. P., Skorovarov, D. I.

TITLE: Extraction of Uranium From Solutions and Slimes

PERIODICAL: Atomnaya energiya, 1960, Vol. 8, No. 6, pp. 519-529

TEXT: The present paper gives data on the extraction of uranium from solutions and slimes of sulfuric, nitric, hydrochloric, and phosphoric acids by means of the esters of various acids, liquid cationites, and anionites. The authors discuss mainly methods which can be used in industry. They first describe the extraction of uranium from solutions. They studied the extraction with various organic compounds (e.g. alcohols, ethers, ketones, diketones, and their halogen derivatives, esters of various acids, aliphatic amides, etc.). Alcohols, ethers, and carboxylic acid esters extract uranium from nitric acid solutions. The selectivity of the acetic acid esters increases with their solubility in water, as may be seen from Table 1. The selectivity of the extracting agents decreases in the following order: carboxylic acid

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X

Extraction of Uranium From Solutions
and Slimes

S/089/60/008/06/04/021
B006/B063 82305

esters, ethers, alcohols (Table 2). Fig. 1 shows the salting-out effect of $\text{Ca}(\text{NO}_3)_2$ in the extraction of uranium by means of isoamyl acetate and dimethyl phthalate. Following this, the authors discuss the extraction by means of phosphoric acid esters. Trialkyl phosphates are well-known selective solvents for the extraction of uranium. The partition coefficient K_p which describes the extractability, rises with an increase in the hydrocarbon radical up to C5 - C6, after which it drops exponentially. Triaryl phosphates practically do not extract uranium. The selectivity of trialkyl phosphates rises with increasing molecular weight of the extraction solvent. This may be seen from Table 3 which shows the dependence of K_p of uranium on the nature of the hydrocarbon radicals of the phosphoric acid esters. The technological process of the extraction of uranium from nitric acid desorption solutions is schematically represented in Fig. 3. The authors next discuss the extraction of uranium by means of diisoamyl esters of methyl phosphinic acid $[\text{i}(\text{C}_5\text{H}_{11}\text{O})_2\text{POCH}_3]$ (DAMFK). Figs. 4 and 5 show the dependence of K_p on the content of hydrochloric acid and phosphoric acid of the solution from which uranium is extracted. Analogously, the

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Extraction of Uranium From Solutions
and Slimes

S/089/60/008/06/04/021
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authors discuss the extractibility of trioctyl phosphin oxide ($\text{C}_8\text{H}_{17})_3\text{PO}$, dialkyl phosphites $[(\text{RO})_2\text{P}(\text{OH})]$ with hydrocarbon radicals from C_4 to C_8 , alkyl phosphoric acids, and amines. Alkylamines and alkyl-arylamines with long chains extract uranium from sulfuric acid solutions and concentrated hydrochloric and nitric acid solutions similarly as ion-exchange resins. The K_p values for U VI are given in Table 4 for numerous amines. Fig. 8 gives the technological scheme for a special case. The last part of the present paper treats the extraction of uranium from ore slimes. The losses of the extraction solvent are discussed, and it is shown that these losses decrease with increasing content of solid substances in the ore slimes or pastes (Fig. 9). The extraction of uranium from an ore paste is schematically shown in Fig. 10 and described. There are 10 figures, 4 tables, and 7 references: 6 Soviet and 1 Yugoslavian.

SUBMITTED: July 18, 1959

Card 3/3

X

84224

S/089/60/009/004/004/020
B006/B070

21.3200

AUTHOR:

Laskorin, B. N.

TITLE:

Extraction of Uranium From Slimes and Solutions by Means of Sorption


PERIODICAL: Atomnaya energiya, 1960, Vol. 9, No. 4, pp. 286 - 296

TEXT: The present paper gives a review of the properties of a number of ion-exchange resins and the methods of applying them for uranium extraction, their characteristics and peculiarities, and a detailed description of the results. The sorption of uranium from purified solutions, and the technique of uranium extraction from ore slimes by means of sorption are discussed in detail (diagram Fig. 13). The ion-exchange technique is very common in industry; for uranium processing and production of pure uranium compounds, the method of sorption from acids, carbonate solutions, and slimes is used. Characteristics of the different anionites used in the USSR are given in Figs. 1 - 12 and compared partly with German, American, and British ones. The following data are given for Russian anionites:

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Extraction of Uranium From Slimes and Solutions by Means of Sorption S/089/60/009/004/004/020
B006/B070

Anionite (type)	Active ionogenic groups	Composition of the solutions				
		1g/l ura- nium (pH=1.0)	1g/l ura- nium 50g/l Na ₂ SO ₄ (pH=1.0)	1g/l ura- nium 30g/l H ₂ SO ₄	1g/l ura- nium 30g/l H ₂ SO ₄ 50g/l Na ₂ SO ₄	1g/l ura- nium 30g/l H ₂ SO ₄ 136g/l H ₃ PO ₄
АН-2Ф(АН-2Ф)	-NH ₂ ; -NH; =N	84	64	32	24	20
ЭДЭ-10П(ЕДЕ-10П)	-NH; ≡ N; ≡ N ⁺	80	70	70	60	60
АМП(АМР)	-N ⁺ 	86	82	20	10	10
АМ(АМ)	-N ⁺ (CH ₃) ₃	73	64	13	8	8

The first sorption method without filtration for the processing of uranium was proposed by the author of the present paper in 1953. At present,

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Extraction of Uranium From Slimes and Solutions
by Means of Sorption

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B006/B070

there are many such known which can be divided in two groups: static and dynamic methods. A diagram for the latter is given. Uranium extraction from ore slimes is now possible for slimes containing up to 40% of solid matter. A further improvement of the sorption technology would require the use of ionites of higher kinetic characteristics and higher selectivity for uranium. There are 13 figures, 1 table, and 9 references: 8 Soviet.

SUBMITTED: April 14, 1960

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25055

S/080/60/033/010/002/029

D216/D306

21.4200

AUTHORS: Laskorin, B.N., and Smirnov, V.F.

TITLE: Extraction of uranium from phosphoric acid solutions

PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 10, 1960,
2172 - 2179

TEXT: One of the methods of ore treatment is extraction with organic compounds preferably with the ester of phosphoric acid. The suggested use of mono- and dibutylphosphoric acid was followed by dialkylphosphoric acids and alkylamines of the dialkylphosphoric acid in particular di(2-ethylhexyl)phosphoric acid and trialkylphosphin oxide and also di- and trialkylamines, whose different structures were investigated. After treating the ore with phosphoric acid, the acid retains a quantity of uranium which could be extracted by the alkyl product of orthophosphoric, pyrophosphoric, dithiophosphoric acid and also alkylphosphin oxides. The esters of these acids could be produced by three main methods, of which the authors have chosen the interaction of phosphorous pentoxide and

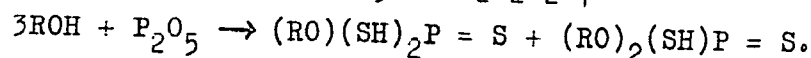
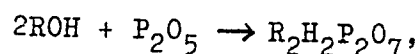
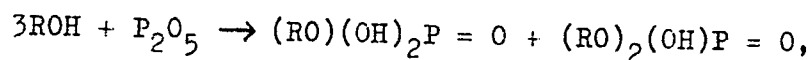
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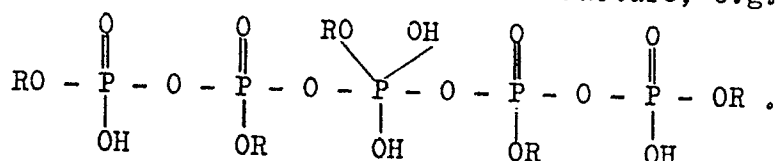
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D216/D306

Extraction of uranium ...

pentasulphide with alcohols



The x-ray analysis of phosphorous pentoxide in the solid phase has thrown some light on possible ways of reaction, i.e. initially alkylpolyphosphate ester is formed of various structure, e.g.



It was established that with a molar proportion of alcohol to phosphoric anhydride equal to three, the products of reaction appeared

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Extraction of uranium ...

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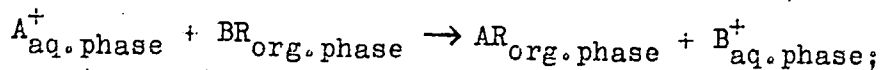
as mono- and dialkylphosphoric esters in equal molar quantities, with a molar proportion of alcohol to anhydride equal to two dialkylpyrophosphoric acid is formed preferably with a mixture of a large numbers of products of the reaction. In such cases the composition of the products of reaction of alcohol with phosphorous anhydride and also pentasulphide is determined by the relative proportion of reacting components, time and temperature of reaction, the nature of solvent, and moisture content of reacting components. To study the process of uranium extraction from phosphoric solutions a number of these compounds were synthesized and used. The results show that mono- and dialkylorthophosphoric acid, dialkylpyrophosphate and dithiophosphoric acid could be used as extracting agents. The distribution of uranium between phases depends on phase composition, concentration of extracted metal and acidity. The process of sorbtion by cationite and extraction with alkylphosphoric acid appeared to obey some law. Since sorbtion could be treated as the distribution of ions between two phases, one of which is solid the process in simple form could be written as:

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Extraction of uranium ...



where A^+ and B^+ - molar concentration in solution, and R - base of sorbent. The equilibrium constant could be written as:

$$k_1 = \frac{a_{AR} \cdot a_{B^+}}{a_{AR} \cdot a_{A^+}},$$

where a_{AR} , a_{BR} - activities of ions A^+ and B^+ in ionite, a_{A^+} , a_{B^+} - activities of these ions in solution. After transformation the so-called Freydlkh equation is obtained:

$$m_{AR} = k(m_{BR})^p,$$

where m_{AR} - number of moles of A on 1 kg of ionite, m_{BR} - number of moles of B in 1 liter of solution, p, k - empirical coefficients, where $p < 1$. In the case of distribution between two immisible pha-

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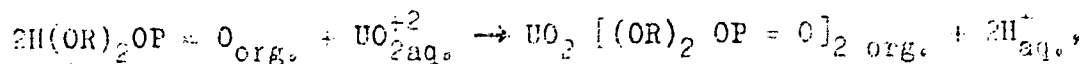
D216/D306

Extraction of uranium ...

ses it could be written

$$C_{org} = KC_{aq.};$$

where C_{org} - concentration of distributed component in org. phase,
 $C_{aq.}$ - in aqueous phase, K - distribution coefficient. The extrac-
 tion of uranium with alkylphosphoric acids proceeds according to:



where R - radical of contracting reagent. The process of uranium
 extraction from phosphoric acid with, for instance, diisooctylpyro-
 phosphoric ester is then described. The extraction was done in 6-
 stage mixer settler of the horizontal type. The uranium concentra-
 tions in the organic phase was 99.5 % and in the aqueous solution
 3 - 5 mg/l. The aqueous solution after removing aluminum was used
 as a phosphate fertilizer. The organic extract containing 3 - 4 g/l
 of uranium was treated with HF to precipitate uranium which was

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D216/D306

Extraction of uranium ...

then centrifuged off and after repulping purified. The organic phase is freed from fluorine ions which could be done in mixer settler or absorption columns. The washing was done with an equal volume of a 15 % solution of sulphuric acid. The washed ester after refreshing with fresh ester is re-used for further extraction. There are 3 figures, 2 tables and 21 references: 6 Soviet-bloc and 15 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: B.F. Greek, O.W. Allen and D.E. Tynan, Ind. Eng. Chem., 4, 628, 1957; A.V. Henrickson, The mines magazine, 5, 22, 1959; C.S. Cronan, Chem. Eng, 4, 96, 1959; C.F. Beas, R.A. Zingaro, C.F. Coleman, J. Phys. Chem., 62, 129, 1958.

SUBMITTED: April 11, 1960

Card 6/6

LASKORIN, B.N.; SMIRNOVA, N.M.; GANTMAN, M.N.; VORONOVA, A.I., red.;
VLASOVA, N.A., tekhn. red.

[Ion-exchange membranes and their use] Ionoobmennye membrany ikh
primeneniye. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i
tekhniki, 1961. 162 p. (MIRA 14:12)
(Ion exchange)

S/136/61/000/011/002/007
E193/E383

AUTHORS: Laskorin, B.N. and Yuzhin, A.I.

TITLE: Sorption and extraction methods of separation of
gallium from aluminium

PERIODICAL: Tsvetnyye metally, no. 11, 1961, 44 - 47

TEXT: The object of the present investigation was to study the adsorption of gallium, aluminium and associated impurities, (iron, manganese, copper,) by solid and liquid ion-exchange materials. The solid exchangers included cation resins $KY-2$ (KU-2), $CT-1$ (SG-1), PQ (RF) and anion resins $3A3-107$ (EDE-10P), $AH-2Q$ (AN-2F), $B7-1$ (VP-1), AM, $AM7$ (AMP), the liquid exchangers comprising alkylamines, trioctylamines, isotrioctylamines, isodioctylamines and n-didecylamines. In the study of sorption of gallium by solid exchangers, sorption from alkaline, sulphuric-acid and hydrochloric-acid solutions was investigated. It was found that gallates were not absorbed from alkaline media. In sulphuric-acid solutions both gallium and aluminium are adsorbed on cation-exchangers, the mode of sorption and the separation factor being unaffected by the variation of pH from
Card 1/15

Sorption and extraction

S/136/61/000/011/002/007
E193/E383

3.5 to 1 or even lower. Selective adsorption of gallium on anion-exchangers takes place in hydrochloric-acid solutions even when they have a high aluminium content. The enclosed graph shows the distribution coefficient K_p , for gallium adsorbed on the anion-exchanger AN-2F against the concentration, M , of hydrochloric-acid solution. The maximum value of K_p at 9-M HCl is attributed to the formation of complexes of the $HGaCl_4$ -type. No adsorption of aluminium from acid solutions takes place, its distribution coefficient in this case being lower than 2×10^{-3} . The distribution coefficients and separation factors for various resins are given in Table 1. Copper and divalent iron are adsorbed from hydrochloric-acid solutions of 8-M or higher concentration, the distribution coefficient for these elements not exceeding 16. Adsorption of trivalent iron increases with increasing acidity of the HCl solution and its distribution coefficient reaches a maximum of 10 at a concentration of 8-M. These results indicate that

Card 2/10 *S*

Sorption and extraction

S/136/61/000/011/002/007
E193/E383

successful extraction of gallium from HCl solutions requires a concentration higher than 3.7-M and reduction of trivalent iron to its bivalent form. The results of the next series of experiments are given in Table 2, where the distribution coefficients are given for gallium and iron extracted from HCl solutions by various amines. The data reproduced in Table 2 relate to HCl solutions with an Al:Ga concentration ratio equal or higher than 610. In analogy to anionic resins, amines do not extract Al from HCl solutions since this metal does not form complexes of the $(GaCl_4)$ -type, the same applying to Cu, Mn and Fe. A study of the kinetics of Ga extraction showed that the state of equilibrium was reached in about 2.5 min. To prevent formation of a third phase, 0.1-m decyl alcohol (which increases the solubility of the complexes in the organic constituent) had to be added to amines. Re-extraction of Ga was successfully carried out with 5% NaCl solution, H_2SO_4 solution with pH = 1 to 1.5, or with a 5% NaOH solution. Based on the laboratory results, a method of extraction of Ga from the waste products (anodic alloy) of electrolytic-aluminium production was

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Sorption and extraction

S/136/61/000/011/002/007
E193/E383

developed. The raw material (anodic alloy) was comminuted to -0.5 mm particle size and dissolved in HCl so as to obtain a solution of a concentration not lower than 3.7-M. Trivalent Fe in the solution was reduced to bivalent, either by adding iron shavings or by the method of internal electrolysis, copper being at the same time precipitated on iron. The solution was filtered through a bed of anionic resin which was subsequently washed with a 5-m HCl solution. Ga was desorbed with a 0.5-M HCl solution, which was subsequently treated with NaOH to produce gallate from which metallic Ga was obtained by electrolysis. The results obtained by this method are illustrated by data given in Table 3. In the second method, Ga was extracted from Al solution with a kerosene solution containing 0.1-M n-trioctylamines or tri(2-ethylhexyl)amine and 0.1-M decyl alcohol. Re-extraction was carried out with a 5% NaOH solution. The separation factor attained for Ga in this method was 4×10^4 .

Card 4/5

Sorption and extraction

S/136/61/000/011/002/007
E193/E585

There are 1 figure, 3 tables and 9 references: 4 Soviet-bloc and 5 non-Soviet-bloc. The three English-language references mentioned are: Ref. 4 - K.A. Kraus, F.J. Nelson. Amer.Chem.Soc., 1955, v. 77, 1391; Ref. 5 - K.A. Kraus, F. Nelson, G.H. Smith - J. Phys. Chem., 1954, v. 58, 11; Ref. 8 - A. Flaschenberg, J. Lavi, J. Tulipman - Che, Process. Engin., 1958, v.39, no. 10, 365.

Card 545

SHOSTAKOVSKIY, M.F.; LASKORIN, B.N.; NIKUL'SKAYA, G.N.; CHEKULAYEVA, I.A.;
IOANISIANI, P.G.

Suspension polymerization of the trivinyl ether of triethanolamine.
Synthesis of a new anion exchanger. Vysokom.soed. 3 no.6:908-911
Je '61. (MIRA 14:6)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Ethanol) (Ethers) (Polymerization) (Ion exchanger resins)

S/089/61/010/004/004/027
B102/B212

21,3000 (1565)

AUTHORS: Laskorin, B. N., Smirnova, N. M.

TITLE: Application of ion-exchange membranes in the hydrometallurgy
of uranium

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 353-361

TEXT: Since large amounts of acids and alkaline solutions are consumed in standard processes of uranium sorption and extraction, the authors have applied electrodialysis with ion-exchange membranes for neutralization of acid or alkaline uranium solutions. This method has also been successfully applied to reduce U VI (from hydrochloric solutions of borate having up to 300 g/l of uranium) electrochemically to U IV. Such ion-exchange membranes (ionite membranes) promote either anion or cation diffusion (anionites, cationites). The membranes used by the authors have been delivered from the Nauchno-issledovatel'skiy institut plastmass Goskomiteta po khimii (Scientific Research Institute of Plastics of the State Committee for Chemistry) and the Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev). Foreign-

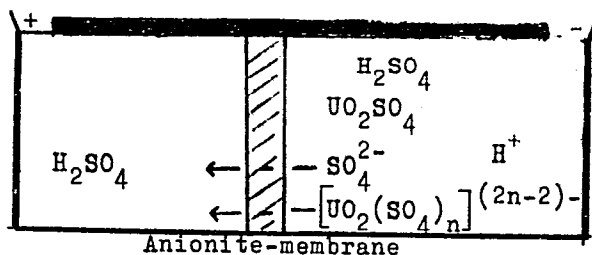
Card 1/8

22601

Application of ...

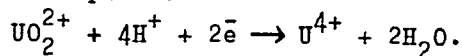
S/089/61/010/004/004/027
B102/B212

made membranes, such as Amberplex C-1 and A-1, Permaplex C-10 and A-10, and Nepton CR-51, CR-61 and AR-111 have also been investigated. First, the application of ion-exchange membranes is described, which are used to remove excessive acid in uranium solutions. The membranes have been tested with sulfuric, nitric, and hydrochloric solutions of uranium. Two-, three-, and twenty-chamber electrodialyzers made of organic glass and having a capacity of 30-1500 ml were used for the purpose. Platinum, tantalum, graphite, lead, and stainless steel served as material for electrodes. Work with two-chamber electrodialyzers. The following setup has been used to remove excessive acid from sulfate solutions having different uranium concentrations:



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The following reaction will also take place:



This is possible since water is decomposed at the anode

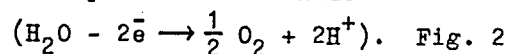


Fig. 2

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Application of ...

illustrates the course of the reduction process. In addition, partial separation of uranium from iron by electrodialysis has also been made (at pH = 3-3.6). It has been found that during this process the cathode was covered with metallic iron; this method has yielded a decontamination factor for uranium from iron of about 1000. Nitric acid solution have been treated analogously (80 g of U/l and pH = 3-3.5). These tests have also been made with a two-chamber device having an anionite membrane. The average amount of energy needed to obtain 1 kg of nitric acid was less than 10 kwh.

Application of multi-chamber electrodialyzers. Multi-chamber systems (as shown in Fig. 4) permit another decrease of energy consumption which is given by $W = E(C^0 - C^1)/37.4 n\eta$ kwh/l of distillate (E denotes the voltage, η the current output, and n the number of chambers). The authors have also investigated the rules governing the transfer of certain ions through a carboxyl membrane at different molar ratios of acid and salt. Amberplex A-1 has been used in tests with pure acids containing 5-6 g of uranium/liter and 1 g-equiv/l of hydrochloric or nitric acid. A three-stage device schematically shown in Fig. 5 has been used to reduce the acid content from 1 to 0.1 g-equiv/l. For 1 N hydrochloric acid $\eta_1 = 0.37$ (first stage), for 0.7 N $\eta_2 = 0.40$, (second stage), and for 0.4 N $\eta_3 = 0.44$ (third stage), the mean

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value of η was 0.40. The flow rate has been calculated from the formula $v = \ln 0.0374 / \Delta C$ l/hr, where n denotes the number of chambers (for the case in question it has been 10); ΔC denotes the difference in concentration of the incoming and outgoing starting solution (in g-equiv/l). The flow rate has been calculated to be $v = 0.230$ l/hr. Application of ionite membranes in separating uranium. Electrodeposition of uranium from sulfuric acid solutions containing ammonium sulfate. In such solutions, uranium will be deposited in the cathode part of the electrolyzer, and any excessive acid will migrate to the anode part and may be reclaimed. For this purpose, two-chamber devices with anionite and cationite membranes are used. Fig. 6 shows a diagram of such a unit with regeneration for a sulfuric acid solution. In order to deposit 1 kg of uranium for a solution with 5 g of uranium/liter, 10.4 kwh will be required at a current density of 32 ma/cm²; for the same case with 10 g of uranium/l 3.4 kwh will be required. Electrochemical deposition of uranium from desorption solutions. Here, also a two-chamber system with regeneration has been used. The catholyte has been a solution with 2.5-10.0 g of uranium/l, 0.1-0.5 N HNO₃, and 0.5-0.9 N NH₄NO₃; the anolyte has been a solution with 0.6-1 N NH₄NO₃. Current has been sent through till it had reached a pH value of 7

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(in the catholyte)..In all tests, yellow, easily filterable ammonium diuranate has been deposited in the cathode part. Utilization of ionite membranes for the electrodialysis of uranium carbonate solutions: Fig. 9 shows a diagram of the layout. A basic starting solution with 0.3 g of uranium/l, 24 g of Na_2CO_3 /l, and 15.3 g of NaHCO_3 /l was in the anode part, while in the cathode part there was a 0.1 N NaOH solution (2.56 g of Na/l). The cationite membrane was pervious to Na ions, but not to U ions, and the alkaline solution could gather in the catholyte (and did not contain more than 3 mg of U/l). All tests showed that the membranes investigated are well suited for various purposes, and their application seems to be promising in the chemical technology of uranium processing. There are 9 figures and 12 references: 6 Soviet-bloc and 6 non-Soviet-bloc. The three references to English-language publications read as follows: P. Kirk USAEC RMO-2506 (1955); R. Kunin Patent USA No. 2, 832, 727, 1958 and No. 2, 832, 728; N. Frisch, USAEC RMO-2516 (1955)

SUBMITTED: October 29, 1960

Card 5/8

LASKORIN, B.N.; SMIRNOVA, N.M.

Electrochemical reduction of U(VI) to U(IV) in hydrochloric acid
solution with the use of cation exchange membranes. Atom.energ.
10 no.5:530-531 My '61. (MIRA 14:5)
(Uranium compounds) (Membranes (Chemistry))

25222

S/080/61/034/008/004/018
D204/D305

26.1610

AUTHORS:

Laskorin, B.N. and Smirnova, N.M.

TITLE:

Comparison of the physico-chemical properties of domestically-produced and foreign ionic membranes

PERIODICAL:

Zhurnal prikladnoy khimii, v. 34, no. 8, 1961,
1700-1709

TEXT: The purpose of the present work is to investigate the basic properties of various membranes and compare home with foreign products. The membrane used in the experiments were domestically produced membranes based on: 1) polyethylene, e.g. cationic - DEU (60%) containing 60% of KU-2 resin, and anionic - DEU (60%) containing 60% of basic AV-16 anionic resin; 2) "nayrit" rubber or chlorosulphonated polystyrene (KhSP), cationic - SDV-3 (70%) nayrit, and SDV-3 (70%) KhSP, anionic - EDE-10p (65%) nayrit (on a silk base); 3) butylmethacrylate adhesive (BM) from KU-2 and EDE-10p resins on glass fiber, cationic - KU-2 (50%) BM, anionic - EDE-10p (50 and 70%) BM. In addition a new type of homogeneous anionic membrane has been


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25222

Comparison of the physico-chemical...

S/080/61/034/008/004/018
D204/0305

produced by combining liquid polyelectrolyte, polyethylenepolyamide, with 12.5% solution of perchlorovinyl resin in dichloroethene in a ratio of 4 : 1 solution cast into films to give D-1 membranes. Various heterogeneous membranes were also prepared by mixing finely divided ion exchange resins, e.g. KU-2, KB-4, Daucka - 50, AM-28, EDM-10p, JRA-400 with polystyrene or polyvinyl chloride. The following products were chosen out of the foreign membranes - Nepton CR-51, Nepton CR-51, Nepton CR-61, Nepton CR-111 (homogeneous) and Amberplex C-1, Amberplex A-1, Permaplex C-10, Permaplex A-10 (heterogeneous). The tests involved determination of swellability, moisture capacity, flow capacity and electrochemical properties, all of which depend on the choice of ion exchange resin and its content in the membrane. In general the strength and elasticity of membrane decrease with an increase of the resin content while at the same time the swellability, moisture capacity and conductivity increase resulting in the reduction of selectivity. The swellability of membranes was determined by using pretreated membranes, i.e. treated with 0.1 N H_2SO_4 to convert cationic membranes to H^+ - form and anionic



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Comparison of the physico-chemical...

S/080/61/034/008/004/018
D204/L305

membranes to sulpho-form. By comparing the length "l" and thickness δ of specimens in dry and swollen states and evaluating the average ratios of $\frac{l_{\text{swollen}}}{l_{\text{dry}}}$ and $\frac{\delta_{\text{swollen}}}{\delta_{\text{dry}}}$ the relative value of the

degree of swellability in water was determined. The moisture capacity of the membranes was determined by weighing dry and swollen specimens, and was expressed by $w = \frac{p_s - p}{v_s \cdot d_o}$ where p and p_s are

corresponding weights in dry and swollen states. v_s is the volume in the swollen state and d_o - density of water. The results are given in tabulated form. The coefficient of flow capacity was measured by passing distilled water through membranes boiled in distilled water to remove air trapped in the pores, and was calculated from the following equation:

$$D = \frac{v}{A \cdot t \cdot p} \cdot \frac{1}{13.6 \cdot 981} \frac{\text{cm}^2 \text{sec}}{\text{g}}$$

where A is the surface of membrane, t - time necessary to pass 5 cm² of liquid and p - pressure in cm Hg. The microstructure of

Card 3/5

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S/080/61/034/008/004/018
D204/D305

Comparison of the physico-chemical...

the membranes was determined by microscopic means. Since the behavior of membranes in electrolyte solutions is similar to that of granular ion exchange resins, they exhibit a specific exchange capacity. It has been established that all the ionic groups of the resin are available irrespective of the thickness of the membrane. One disadvantage of such sorbents is, however, the slow rate of establishing an ion exchange equilibrium. The most important electrochemical properties of membranes are electrical conductivity and selectivity or electrochemical activity, which is expressed as the ability of a membrane immersed in a solution to vary the transfer number of ions in an electric field. There are two well known methods of determining the number of ions transferred through membranes: 1) Determination of concentration changes in solutions surrounding the membrane and; 2) Determination of membrane potentials. The specific conductivity of membranes was measured with the use of platinum electrodes and A.C. current of 1500 cycles. The transfer number measurements showed that the electrochemical activity of all membranes was highest in dilute solution and decreased with the increased electrolyte concentration. There are 5 figures, 5 tables

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Comparison of the physico-chemical...
and 7 Soviet-bloc references.

S/080/61/034/008/004/018
D204/D305

SUBMITTED: July 19, 1960

Card 5/5

PLAKSIN, I.N.; LASKORIN, B.N., doktor tekhn.nauk; SHIVRIN, G.N., inzh.

Liquid extraction of complex gold and silver cyanides from
cyanide solutions. TSvet.met. 34 no.9:20-23 8 '61.

(MIRA 14:10)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Cyanide process)

LASKORIN, B.N.; SHIVRIN, G.N.; PLAKSIN, I.N.

Liquid extraction of complex cyanide compounds of gold and silver from alkaline solutions. Dokl. AN SSSR 139 no.5:1170-1172 Apr '61. (MIRA 14:8)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Gold cyanide) (Silver cyanide) (Complex compounds)

S/828/62/000/000/003/017
E039/E420

AUTHORS: Laskorin, B.N., Kaplan, G.Ye., Arzhatkin, A.M.
TITLE: A continuous countercurrent method of separating zirconium and hafnium
SOURCE: Razdeleniye blizkikh po svoystvam redkikh metallov. Mezhevuz. konfer. po metodam razdel. blizkikh po svoyst. red. metallov. Moscow, Metallurgizdat, 1962, 48-50

TEXT: This method utilizes chromatographic separation operated continuously by arranging for the resin packing in the column to move countercurrent to the zirconium-hafnium solution. The column is 400 mm inner diameter and the height of the resin ion exchange layer can be varied from 50 to 200 cm. The initial solution is zirconium and hafnium fluorosulphate with a normal concentration of zirconium and hafnium oxides ~65 g/litre. Ratios of Zr:Hf used are 100:1 and 1:1. Satisfactory separation of Zr and Hf was obtained using ion resin KY-2 (KU-2) standard coarseness (20 to 50 mesh). The solution is fed into the middle of the column and flows upwards while the resin particles move downwards. Hf is absorbed more strongly in the lower part of the column and Zr in the upper part. As the resin
Card 1/2

A continuous countercurrent ...

S/828/62/000/000/003/017
E039/E420

passes down the column it goes through a regenerating solution of ~ 8% H_2SO_4 and is then transferred to the top of the column through an external tube by means of an airlift. The solution discharged from the top of the column contains zirconium with less than 0.03% Hf while the solution from the lower part of the column contains hafnium with up to 1% of Zr. This apparatus produces a significantly higher output than the discontinuous chromatographic process. There is 1 figure.

Card 2/2

S/828/62/000/000/006/017
E039/E420

AUTHORS:

Laskorin, B.N., Kaplan, G.Ye., Uspenskaya, T.A.,
Barushkova, R.I.

TITLE:

The extraction and separation of tantalum and niobium
from hydrofluoric acid - trioctylamine solutions

SOURCE:

Razdeleniye blizkikh po svoystvam redkikh metallov.
Mezhvuz. konfer. po metodam razdel. blizkikh po svoyst.
red. metallov. Moscow, Metallurgizdat, 1962, 71-78

TEXT: Ta and Nb are extracted from a hydrofluoric acid solution
containing Ta_2O_5 and Nb_2O_5 by means of tri-octylamine
[TOA - $(C_8H_7)_3N$]. The extraction is carried out in a separating
funnel using mechanical stirring. After separating the phases
the Ta and Nb content in each is determined radiometrically by
counting the activity of the radioactive isotopes (Ta^{182} and Nb^{95})
which were introduced into the initial solution before extraction.
A chemical analysis was also made and good agreement obtained.
Maximum extraction of Nb in the organic phase is attained with a
contact time of 3 minutes and for Ta in 1 to 2 minutes; hence
in all later experiments contact times of 3 to 5 minutes were used.
Card 1/2

The extraction and separation ...

S/828/62/000/000/006/017
E039/E420

A high separation coefficient ≈ 400 is obtained for concentration $\sum (Ta, Nb)_{2O_5} = 200$ g/litre with $Ta_{2O_5}/Nb_{2O_5} \approx 1$. The effect of the type of diluent on the extraction is also investigated. In the case of kerosene a third phase is formed which can be eliminated by the use of decyl or octyl alcohol. The re-extraction of Ta and Nb is examined and it is shown that Nb is extracted by (a) 7% HCl, (b) 6 to 10% HNO_3 , (c) 14% NH_4Cl and (d) 25% NH_3 solution. Ta is extracted only by concentrated HNO_3 (600 to 800 g/litre) and 25% NH_3 solution. By a combination of extraction and re-extraction it is possible to obtain an almost complete separation of Ta and Nb from HF solution. There are 4 figures.

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S/830/62/000/001/004/012
E193/E383

AUTHORS: Laskorin, B.N. and Yuzhin, A.I.

TITLE: Extraction of gallium from the anode alloy with the aid of liquid ionites

SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura. Ed. by A. P. Zefirov and M. N. Senyavin. Moscow. Gosatomizdat, 1962. 112 - 116

TEXT: The anode alloy, obtained during electrolytic refining of aluminium, constitutes a practically unlimited source of gallium, the extraction method providing the most convenient means of recovering gallium from raw materials of this type. The object of the present investigation was to establish the optimum conditions for separating gallium from aluminium by studying both the static and dynamic characteristics of the process. Primary, secondary and tertiary amines were used as the extracting reagents. None of these was found to be effective in sulphuric acid solutions. All other factors being equal, best results in hydrochloric acid solutions were obtained with tertiary amines, tri(2-ethylhexyl) amine being more effective than n-trioctyl amine; Card 1/4

Extraction of gallium

S/830/62/000/001/004/012

E193/E383

the distribution coefficient D , attained with the former reagent, increased from 0.2 at 0.2 mole.HCl to approx. 10^4 at 4 mole.HCl (the Al/Ga ratio in the experimental solutions was not lower than 511). Little aluminium was extracted by the reagents studied, the value of D for this metal not exceeding 10^{-3} , irrespective of the acidity of the solution. A study of the kinetics of the process showed that equilibrium was reached in less than 2.5 min. Since with increasing concentration of HCl the salting-out action of chlorine ions on the gallium complex became more pronounced, the formation of a third phase had to be prevented by adding to the amine 0.1 mole. decyl alcohol which increased the solubility of the complex in the organic phase. Re-extraction could be carried out with a 5% NaCl solution, a H_2SO_4 solution (pH \approx 1-1.5) or a 5% NaOH solution, the respective distribution coefficients attained being $D_{NaCl} = 0.33$, $D_{H_2SO_4} = 0.7$ and

$D_{NaOH} = 0.166$; the re-extraction time was 4-5 minutes.. Impurities such as manganese, iron (II) and copper (II) were not extracted

Card 2/4

Extraction of gallium

S/830/62/000/001/004/012
E193/E383

by tertiary amines and did not affect the extraction process; with increasing acidity of the solution the distribution coefficient of iron (III) increased, reaching a value of 10^3 at 8 mole. HCl. Based on the results obtained, the following method of extracting gallium from the anode alloy was developed. The starting material (anode alloy) is ground to 0.5 - 0.3 mm particle size and dissolved in hydrochloric acid to obtain a solution with acidity not lower than 1.5 - 2 mole HCl. The solution, containing gallium, aluminium, iron, manganese and copper, is treated with iron or aluminium turnings until complete reduction of trivalent iron is attained (instead of reduction with iron turnings internal electrolysis could be used). After extraction with a solution containing 0.1 mole. n-trioctylamine (or iso-octylamine) and 0.1 mole. decyl alcohol in kerosene (added in the ratio 1:10), gallium is re-extracted from the organic phase with a 5% NaCl solution, or a H_2SO_4 solution (pH - 1), used in the proportion 10:1. The re-extract is then treated with a 5% NaOH solution to obtain gallate, from which metallic gallium is obtained electrolytically. If extraction is carried out from unreduced solution, Card 3/4

Extraction of gallium

S/830/62/000/001/004/012

E193/E383

re-extraction is effected with a 5% NaOH solution, the formation of gallate and elimination of trace quantities of iron (III) taking place at the same time. The gallium content in the final solution is 10 g/l., the purification coefficient in respect of aluminium reaching a value of 40 000. There are 2 figures and 1 table.

Card 4/4

S/830/62/000/001/008/012
EO79/E192

AUTHORS: Laskorin, B.N., Skorovarov, D.I., and Shatalov, V.V.

TITLE: Extraction of uranium with trioctylphosphin oxide

SOURCE: Ekstraktsiya; teoriya, primeneniye, 'apparatura.
Ed. by A.P. Zefirov and M.M. Senyavin.
Moscow, Gosatomizdat, 1962. 163-170

TEXT: The main extracting properties of trialkylphosphin oxides are illustrated on trioctylphosphin oxide (TOPO). Taking into consideration that the saturation of TOPO is attained already at an equilibrium concentration of uranium in aqueous phase (about 1 g/l) and that at low initial concentration of uranium TOPO retains a high capacity, coefficients of distribution of uranium on extraction with 0.1 M solution of TOPO in kerosene from nitrate solutions with a low uranium content (965-0.08 mg/l) were determined. With decreasing concentration of uranium in the aqueous solution, the coefficient of distribution increases and reaches 20,000. The influence of the concentration of nitric and hydrochloric acids on the extraction of uranium was also determined. The salting out action of nitric acid is evident to a concentration

Card 1/2

Extraction of uranium with ...

S/830/62/000/001/008/012
E079/E192

of 1.5 M and of hydrochloric acid - 4M. The presence of sulphate and phosphate ions as well as sulphuric and phosphoric acids in nitric and hydrochloric acid solutions substantially decreases the extraction of uranium only at their high concentrations. On the basis of the saturation value of TOPO with uranium (300 mg/g) it is concluded that it is extracted in the form of $\text{UO}_2(\text{NO}_3)_2 \cdot 2\text{TOPO}$ and $\text{UO}_2\text{Cl}_2 \cdot 2\text{TOPO}$. The dependence of the uranium distribution coefficient on the molar ratio of TOPO/uranium for nitrate solutions was determined. The highest coefficients are obtained at a ratio of 6-7. The influence of additions of nitric and oxalic acids on the extraction of uranium from sulphuric and phosphoric acid solution was determined. It is concluded that, unlike other neutral phosphoroorganic compounds, TOPO extracts uranium practically from all aqueous solutions of acids with a sufficiently high distribution coefficient, in the presence of small amounts of nitric acid.

There are 9 figures and 1 table.

Card 2/2

S/830/62/000/001/009/012
EQ79/E192

AUTHORS: Laskorin, B.N., Ul'yanov, V.S., and Sviridova, R.A.
TITLE: Extracting properties of alkylphosphoric acids
SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura.
Ed. by A.P. Zefirov and M.M. Senyavin.
Moscow, Gosatomizdat, 1962. 171-187

TEXT: The results of investigations on the extraction of uranium from solutions of various compositions are given. The following compounds were used as extracting agents: mono(2-ethylhexyl)-phosphoric acid (M2EHFA); di(2-ethylhexyl)-phosphoric acid (D2EHFA); and di(2-ethylhexyl)pyrophosphoric acid (D2EHPPA); as well as their mixtures with tributylphosphoric acid (TBP); di-isoamyl ester of methylphosphonic acid (DAMPA); and tributylphosphinoxide (TBPO). These compounds were chosen as being typical for the whole class of long-chain acid alkylphosphates and 2-ethylhexanol as one of the most easily available alcohols. The synthesis of the extracting agents is described. The solubility in 1M Na_2CO_3 and 1M H_2SO_4 and losses (due to incomplete separation

Card 1/3

Extracting properties of ...

S/830/62/000/001/009/012
EO79/E192

of phases) of (2-ethylhexyl)phosphonic acids (used as 0.1M solutions in kerosene) were also determined. An addition to the organic phase of TBP or other neutral phosphoroorganic compounds or highmolecular alcohols sharply decreases the solubility of the extracting agents. It is concluded that the use of M2EHPPA is uneconomic due to its high solubility losses (4 g/litre). Under industrial conditions monoalkylphosphoric acids with a larger radical (C_{12} and above) should be used. Total losses of D2EHPPA (80-100 mg/litre) and of D2EHPPA - 20-35 mg/litre. On the addition of TBP or an alcohol, losses due to solubility can be reduced to 3-10 mg/litre and the consumption of the two reagents is mainly due to incomplete separation of phases. Studies of the extractive properties of the reagents indicated that: monoalkylphosphoric acids can be used for the separation of hexavalent uranium from phosphoric acid solutions with a concentration not exceeding 0.8M and sulphuric acid solutions with a concentration of up to 4M. On extraction of uranium from salts of the corresponding acids the distribution coefficients are considerably higher. Tetravalent uranium is better extractable than the hexavalent.

Card 2/3

Extracting properties of ...

S/830/62/000/001/009/012
E079/E192

D2EHPA in mixture with the neutral reagents can be utilised for the extraction of uranium from most industrial solutions. If the solution contains a considerable amount of complex forming anions additions of trioctylphosphinoxide (TOPO) are necessary for "lighter" solutions - TBP or DAMPA should be added. The re-extraction can be effected by treating the extract with a soda solution or better with ammonium carbonate. Both hexa- and tetravalent uranium are extracted with D2EHPPA with high distribution coefficients. The main deficiency of D2EHPPA lies in its tendency to hydrolysis, causing large losses of the substance. The extraction of iron and other elements with acid alkylphosphates is also discussed. Other elements, and particularly iron, lead to some difficulties in the application of the extracting agents, but mixtures of D2EHPA with TBP, DAMPA, TOPO are sufficiently selective in respect of uranium. There are 19 figures and 2 tables.

Card 3/3

LASKORIN, B.N.; SKOROVAROV, D.I.; SHATALOV, V.V.

Extraction of uranyl nitrate from nitric acid desorption solutions
by tributyl phosphate and other organosporous compounds. Estr.;
teor.,prim.,app. no.2:174-178 '62. (MIRA 15:9)
(Uranyl nitrate) (Phosphorous organic compounds)

LASKORIN, B.N.; GOLYNKO, Z.Sh.; SKOROVAROV, D.I.

Extraction of uranyl sulfate by tri-n-octylamine. Ekstr.; teor.,
prim., app. no. 2:190-198 '62. (MIRA 15:9)
(Uranyl sulfate) (Octylamine)

LASKORIN, B.N.; KUZNETSOV, V.A.

Extraction of uranium from hydrochloric acid solutions. Ekstr.;
teor.,prim.,app. no.2:209-218 '62. (MIRA 15:9)
(Uranium) (Hydrochloric acid)

LASKORIN, B.N.; KHLUDENEV, I.K.; SMIRNOV, V.F.; KRASOV, V.G.

Methods for designing a mix-and-settle extractor. Ekstr.; teor.,-
prim., app. no. 2:264-283 '62. (MIRA 15:9)
(Extraction apparatus)

LASKORIN, B.N.; PUSHLENKOV, M.F.; BERESTOVOY, A.M.; SMIRNOV, V.F.;
SHCHEPETIL'NIKOV, N.N.

Horizontal mix-and-settle extractor. Ekstr.; teor., prim., app.,
no. 2:347-360 '62. (MIRA 15:9)
(Extraction apparatus)

LASKORIN, B.N.; SMIRNOV, V.F.; KRASOV, V.G.

ER-350 countercurrent rotary extractor and means for increasing
its efficiency. Ekstr.; teor.,prim.,app. no.2:361-371 '62.

(MIRA 15:9)

(Extraction apparatus)

LASKORIN, B.N.; SALAMATOV, I.I.; KRASOV, V.G.; SMIRNOV, V.F.

TSE-60 centrifugal tubular superextractor for the extraction
recovery of nonferrous metals. Ekstr.; teor., prim., app. no. 2.372-
378 '62. (MIRA 15:9)

(Nonferrous metals) (Extraction apparatus)

SMIRNOV, V.F.; LASKORIN, B.N.

Nephelometric method of determining the losses of the extraction
agent in aqueous solutions. Zav.lab. 28 no.4:416 '62. (MIRA 15:5)
(Nephelometric analysis) (Extraction (Chemistry))

LASKORIN B.N.

ISA KORIN, B.N.; YAKUBOVICH, I.A.; ZUYEV, G.P.; KRASOV, V.G.; SMIRNOV, V.F.;
PIVOVAROV, F.Ya.

Mix-and-settle apparatus for the extraction of uranium and rare
metals from aqueous solutions. Atom. energ. 12 no.6:503-513 Je '62.
(MIRA 15:6)

(Extraction apparatus)

LASKORIN, B.N.; SUZYUMOVA, N.M.

Flotation of carboxyl resins and anion exchangers AN -2F and
AMP. Zhur.prikl.khim. 35 no.4:828-832 Ap '62. (MIRA 15:4)
(Ion exchange resins) (Flotation)

LASKORIN, B.N.; UL'YANOV, V.S.; SVIRIDOVA, R.A.

Extraction of molybdenum and tungsten from aqueous solutions.

Zhur.prikl.khim. 35 no.11:2409-2414 N '62.

(MIRA 15:12)

(Molybdenum—Analysis)

(Tungsten—Analysis)

CHERNOBROV, S.M., otv. red.; LASKORIN, B.N., red.; KLYACHKO, V.A., red.; MATEROVA, Ye.A., red.; LANGE, A.Z., red.; VITTIKH, M.V., red.; SHOSTAK, F.T., red.; SAVENKO, O.D., red.; ZYKOVA, V.V., red.; GLAZYRINA, D.M., red.; ALFEROVA, P.F., takhn. red.

[Theory and practice of ion exchange] Teoriia i praktika ionnogo obmena; trudy. Alma-Ata, Izd-vo AN Kaz.SSR, 1963. 186 p. (MIRA 17:3)

1. Kazakhstanskoye respublikanskoye nauchno-tekhnicheskoye soveshchaniye po ionnomu obmenu. 1962. (MIRA 17:3)

LASKORIN, B.N.; TIMOFEYEVA, V.K.

Separation of cobalt and nickel by means of anion exchangers.

Zhur.prikl.khim. 36 no.1:37-41 Ja '63.

(MIRA 16:5)

(Cobalt--Analysis)

(Nickel--Analysis)

(Ion exchange)

LASKORIN, B.N.; SKOROVAROV, D.I.; FILIPPOV, Ye.A.; SHILIN, A.L.

Mixtures of mono- and di(2,4-diethyl-1-octyl) methyl phosphonates
as extractants. Radiokhimiia 5 no.4:424-428 '63. (MIRA 16:10)

(Phosphonic acid)

(Extraction (Chemistry))

IOANISIANI, P.G.; LASKORIN, B.N.; ALEKSEYEVA, N.L.

Anion exchangers based on the copolymers of glycidyl methacrylate
and dimethacrylic esters of ethylene glycol. Vysokom.soed. 5
no.8:1213-1218 Ag '63. (MIRA 16:9)
(Ion exchangers) (Methacrylic acid) (Ethylene glycol)

LASKORIN, B.N.; TIMOFEYeva, V.K.

Separation of nickel and cobalt on anion exchangers containing complex-forming groups. Zhur. prikl. khim. 36 no.9: 2071-2073 D '63. (MIRA 17:1)

LASKORIN, B.N.; TIMOFEYEVA, V.K.; ZARUBIN, A.I.

Complex formation in the sorption of cobalt (II) and nickel (II)
on the carboxylic resin SG. Zhur. fiz. khim. 37 no.12:2694-
2697 D '63. (MIRA 17:1)

ACCESSION NR: AP4019499

S/0078/64/009/003/0738/0741

AUTHORS: Baram, I.I.; Laskorin, B.N.

TITLE: Extraction of hydrofluoric acid with tri-n-butylphosphate

SOURCE: Zhurnal neorg. khimii, v. 9, no. 3, 1964, 738-741

TOPIC TAGS: hydrofluoric acid, extraction, tributylphosphate, rare metal extraction, extraction mechanism, distribution ratio, partition coefficient, hydrofluoric acid tributylphosphate mono-solvate, graphic method, isomolar series method

ABSTRACT: In the technology of rare metal extraction with tri-n-butylphosphate (TBF) hydrofluoric acid media, particularly when H_2SO_4 or other mineral acids are used, the acid concentrations in the original solutions exceed the rare metal concentration. The conditions and mechanisms of extracting HF with TBF are therefore of interest. The distribution of HF in HF- H_2O -TBF, in HF- H_2SO_4 - H_2O -TBF, and in HF- H_2O -TBF-kerosene systems was investigated. The

Card 1/2

ACCESSION NR: AP4019499

partition coefficient of H_2SO_4 between H_2O and TBF in the presence of HF decreases with increase in HF. The extraction mechanism was studied by the graphic method and the isomolar series method (both described by V.V. Fomin. Khimiya ekstraktsionnykh protsessov. (Chemistry of Extraction Processes), Atomizdat, 1960, str. 54) to determine the relationship of $lg D_{HF} = f(lg [TBF]_o)$ where D_{HF} is the partition coefficient of HF, and $lg [TBF]_o$ is the equilibrium concentration of free TBF in the organic phase. By examining the HF concentration in the organic and aqueous phases on extracting with a kerosene solution of TBF, it was determined that the HF:TBF ratio is 1:1, hence the HF.TBF monosolvate is formed. The equilibrium constant K is 0.3 ± 0.03 . Orig. art. has: 4 figures and 1 table and 7 equations.

ASSOCIATION: None

SUBMITTED: 18Feb63

DATE ACQ: 31Mar64

ENCL: 00

SUB CODE: CH

NO REF SOV: 011

OTHER: 009

Card 2/2

LASKORIN, B.N.; TIMOFEEVA, V.K.

Sorption recovery of cobalt and nickel from ammonia solutions. TSvet.
met. 37 no.6:23-25 Je '64. (MIRA 17:9)

TIMOFFEYeva, V.K.; LASKORIN, B.N.

Tellurium sorption from sulfuric acid and alkali solutions
on resins of various structure. TSvet. met. 37 no.11:81-84
N '64. (MIRA 18:4)

L-27606-55 EWT(m)/EPF(n)-2/EMP(t)/EMP(b) Pu-4 IJP(c) ES/JD/WM/JG

ACCESSION NR: AP5001641

S/0186/64/006/006/0646/0651

AUTHOR: Fedorova, L. A.; Stupin, N. P.; Laskorin, B. N.

TITLE: Study of the extractive properties of polyisobutyl-vinylphosphonate

SOURCE: Radiokhimiya, v. 6, no. 6, 1964, 646-651

TOPIC TAGS: ²⁷uranium ¹⁸extraction, uranyl nitrate, isobutyl vinylphosphonate polymer, infrared spectrum, uranium complex

ABSTRACT: The authors studied the extraction of uranium from nitric acid solutions with an isobutyl phosphonate polymer, using infrared spectroscopy. A shift in the frequency of the stretching vibrations of the P=O group ($\Delta \nu = -50 \text{ cm}^{-1}$) was observed in the spectrum taken when a 10 M nitric acid solution was used, and the appearance of molecular vibrations of HNO_3 was established. A frequency shift in the stretching vibrations of P=O, equal to 80 cm^{-1} , was found in the infrared spectrum of the organic phase when uranium was extracted from a 1 M nitric acid solution, indicating the coordination of the metal being extracted around this group. This spectrum also showed the characteristic frequencies of the covalently bound -O-NO₂ group. The data obtained show that the extraction of undissociated uranyl nitrate can be performed with the isobutyl vinylphosphonate

Cord 1/2

L 27606-65

ACCESSION NR: AP5001641

0
polymer at a distribution coefficient of 0.2 (1 g of polymer in 100 ml of CCl_4)
and a ratio of $UO_2(NO_3)_2$ to the extracting agent of 1:2. Orig. art. has: 6
figures and 1 table.

ASSOCIATION: none

SUBMITTED: 29Jun64

ENCL: 00

SUB CODE: IC

NO REF SOV: 007

OTHER: 005

Card 2/2

E 63585-65 EWT(m)/EWG(m) RM/RH/GS
ACCESSION NR: AT5013639

UR/0000/65/000/000/0080/0085
66.074.8; 546.791.6

14
B+

AUTHOR: Laskorin, B. N.; Slesareva, D. D.; Semenikhina, L. A.

TITLE: Ion-exchange behavior of uranyl in hydrochloric acid media. Separation of uranium, sulfate, and phosphate in the process of desorption

SOURCE: AN SSSR, Otdeleniye obshchey i tekhnicheskoy khimii, Radiokhimicheskiye metody opredeleniya mikroelementov (Radiochemical methods for determining trace elements); sbornik statey. Moscow, Izd-vo Nauka, 1965, 80-85

TOPIC TAGS: column chromatography, uranium separation, anion exchange resin, uranyl ion, uranium desorption

ABSTRACT: A study was made of the influence of HCl concentration on the process of sorption of hexavalent uranium by anion exchangers of different basicities containing amino and pyridinium groups, under static conditions. The results obtained were used in the separation of uranium, phosphate, and sulfate ions in the process of desorption. As the HCl concentration increases (up to 6-8 M), the capacity to adsorb uranium increases, the adsorption of strongly basic exchangers being more effective than that of weakly or moderately basic ones. The sorption

Card 1/2

L 63585-65

ACCESSION NR: AT5013639

of uranium is explained by the formation, in concentrated HCl media, of anionic chloride complexes which have a great affinity for the anion exchangers. For this reason, treatment with concentrated HCl of an anion exchanger saturated with uranium from sulfate solutions converts the sorbed sulfate complex to a chloride complex, this conversion being gradual. Subsequent desorption of uranium with water or a weak HCl solution (1-2%) makes it possible to achieve a 90-95% separation of uranium from sulfate and phosphate ions. The incomplete separation of uranium from ferric ions is explained by the sorption of anionic chloride complexes of iron, which are stable in concentrated HCl media. Orig. art. has: 4 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 17Jan63

ENCL: 00

SUB CODE: IC, Gc

NO REF SOV: 003

OTHER: 002

Card ^K 2/2

~~L-63622-65~~ ~~EFT(n)-2/EFT(m)/EFT(e)/EFT(t)~~ ~~Pa-1~~ ~~IJP(c)~~ ~~WA/JD/JG~~

ACCESSION NR: AP5017002

UR/0186/65/007/003/0356/0357

542.61:546.791.6:661.718.1+661.718.2

22
21
B

AUTHOR: Laskorin, B. N.; Filippov, Ye. A.; Goncharenko, G. I.; Skvortsov, N. V.; Skorovarov, D. I.

TITLE: Extraction of uranium (VI) from carbonate solutions by quaternary phosphonium and arsonium bases

SOURCE: Radiokhimiya, v. 7, no. 3, 1965, 356-357

TOPIC TAGS: uranium extraction, phosphonium base, arsonium base, hydroxyquinoline

ABSTRACT: To determine the effect of the concentration of carbonate ions and nature of the diluent on the extraction of uranium (VI), the authors tested phosphonium salts

$[R_4P]^+Cl^-$ and arsonium salts $[R_4As]^+Cl^-$. The organic phase consisted of a 0.1 M solution of the quaternary base in chloroform or butyl ethyl ketone containing 7 vol. %

n-octanol. 0.008 M aqueous solutions of uranium containing 0.1 M ammonium bicarbonate and 0.1-1.0M sodium carbonate were employed. The extraction was carried out by vigorously shaking the combined aqueous and organic phases. It was found that the arsonium and phosphonium compounds have practically the same extractive properties, but the addition of 8-hydroxyquinoline causes the distribution ratio to be much higher in the case of the arsonium compounds. It is concluded that the extraction of uranium (VI) from carbonate

Card 1/2

L 63622-65

ACCESSION NR: AP5017002

media by the phosphonium and arsonium compounds is rather ineffective owing to a decrease in the distribution coefficient caused by an appreciable solubility of the complex in the aqueous phase; however, the addition of 8-hydroxyquinoline raises the distribution ratio because of the formation of the complex $[\text{UO}_2(\text{C}_9\text{H}_6\text{ON})_3]^-$, which has no affinity for water. "The phosphonium and arsonium bases were synthesized by G. Kh. Kamay and co-workers." Orig. art. has: 3 figures and 4 formulas.

ASSOCIATION: None

SUBMITTED: 23Dec63

ENCL: 00

SUB CODE: IC

NO REF SOV: 000

OTHER: 007

Card

2/2

L 36702-65 EPP(n)-2/EPR/ENT(m)/ENG(m)/ENP(b)/ENP(t) Ps-4/Pu-4 IJP(c) JD/JG

ACCESSION NR: AP5005016

S/0078/65/010/002/0507/0511

34

AUTHOR: Baram, I. I. ; Kaplan, G. Ye. ; Laskorin, B. N.

8

TITLE: The mechanism of extracting tantalum and niobium with tri-n-butylphosphate
27 27

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 2, 1965, 507-511

TOPIC TAGS: tantalum extraction, niobium extraction, tributylphosphate, tantalum fluoride tributylphosphate complex, niobium fluoride tributylphosphate complex

ABSTRACT: The mechanism of extraction of Nb and Ta in the system 2.5 mol HF + 4 mol H₂SO₄-tributylphosphate (TBP) was studied by the isomolar series method and by the shift of equilibrium. The first method indicated Nb was extracted by TBP as the tri-solvate H₂NbF₇·3TBP or HNbF₆·2TBP, and Ta was extracted as the di-solvate H₂TaF₇·2TBP or HTaF₆·2TBP. The second method confirmed the trisolvate formation with Nb, but indicated that Ta formed the solvates H₂TaF₇·3TBP and H₂TaF₇·4TBP. Thus at high concentrations, the tantalum complex is solvated with 2 molecules of TBP, but at lower concentrations, the

Cord 1/2

I 36702-65

ACCESSION NR: AP5005016

number of TBP solvate molecules increased to 3 and 4. Orig. art. has: 3 figures,
2 tables and 8 equations

ASSOCIATION: None

SUBMITTED: 03Aug63

ENCL: 00

SUB CODE: GC

NR REF SOV: 005

OTHER: 002

Card 2/2

LASKORIN, B.N.; UL'YANOV, V.S.; SVIRIDOVA, R.A.

Extraction of vanadium by trioctylamine and di-(2-ethylhexyl)
phosphoric acid. Zhur. prikl. khim. 38 no.5:1133-1136 My '65.
(MIRA 18:11)

LASKORIN, B .N.; SMIRNOV, V.F.

Extraction of uranium VI from a phosphoric acid solution with di-2-ethylhexylphosphoric and monolaurylphosphoric acids. Zhur. prikl. khim. 38 no.10:2226-2232 0 '65.

Extraction of uranium and thorium from phosphoric acid solutions with a mixture of acid and neutral alkylphosphoric compounds. Ibid.:2232-2236 (MIRA 18:12)

1. Submitted August 16, 1964.

1 11195-66 EWT(m)/EPF(n)-2/FCC/ENP(t)/ENP(n)/ENP(b) IJP(c) JD/WW/JG

ACC NR: AP5025656

SOURCE CODE: UR/0080/65/038/010/2232/2236

AUTHOR: Laskorin, B. N.; Smirnov, V. F.

ORG: none

TITLE: Extraction of uranium and thorium from phosphate solution by means of mixtures of acidic and neutral alkylphosphate compounds

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 10, 1965, 2232-2236

TOPIC TAGS: uranium, thorium, phosphate, phosphonic acid, metal extracting, *ACID BASE EQUILIBRIUM, CHEMICAL SEPARATION*

ABSTRACT: The study was conducted in order to examine the feasibility of extracting uranium and thorium from phosphate solutions by mixtures of acidic and neutral alkylphosphate compounds. The extraction experiments were conducted at 21°C using normal hexane as a diluent and various concentrations of tributylphosphate, diamylmethylphosphonic acid, and triorthophosphoxide in di-2-ethylhexylphosphonic acid. It was found that the addition of neutral alkylphosphate compounds to an acidic phosphate solution in normal hexane considerably increases the coefficient for the separation of uranium and thorium from their phosphate solutions. Application of such an alkylphosphate mixture yields uranium and thorium virtually free of rare earth elements, iron, and aluminum. Orig. art. has: 4 figures, 4 tables.

UDC: 66.061.5+546.791+546.841

Cord 1/2